Dell Vostro 5560
Owner's Manual

Regulatory Model: P34F
Regulatory Type: P34F001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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1

Working on Your Computer

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).

   CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.
3. Disconnect all network cables from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets.
5. Press and hold the power button while the computer is unplugged to ground the system board.
6. Remove the cover.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:
   - In Windows 8:
     * Using a touch-enabled device:
       a. Swipe in from the right edge of the screen, opening the Charms menu and select **Settings**.
       b. Select the and then select **Shut down**
     * Using a mouse:
       a. Point to upper-right corner of the screen and click **Settings**.
       b. Click the and select **Shut down**.
   - In Windows 7:
     1. Click **Start**.
     2. Click **Shut Down.**

     or

     1. Click **Start**.
     2. Click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down.**.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

1. Replace the cover.

   CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.
2. Connect any telephone or network cables to your computer.
3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.
5. If required, verify that the computer works correctly by running the Dell Diagnostics.

2

Removing and Installing Components

This section provides detailed information on how to remove or install the components from your computer.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Small plastic scribe

System Overview

The figure displays the inside view of the back of the computer after the base cover has been removed. The call outs show the names and the layout of the components inside the computer.

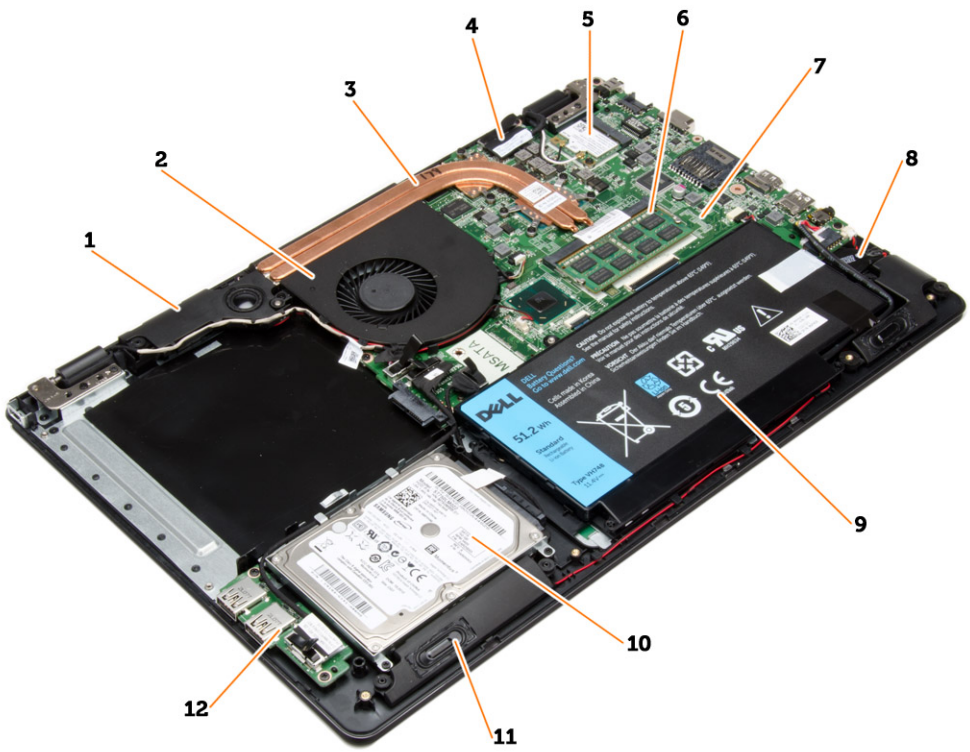


Figure 1. Inside view

1. woofer
2. system fan
3. heat sink
4. display cable
5. WLAN card
6. memory
7. system board
8. coin-cell battery
9. battery
10. hard drive
11. speaker
12. I/O board

Removing The Optical-Disk Drive (ODD)

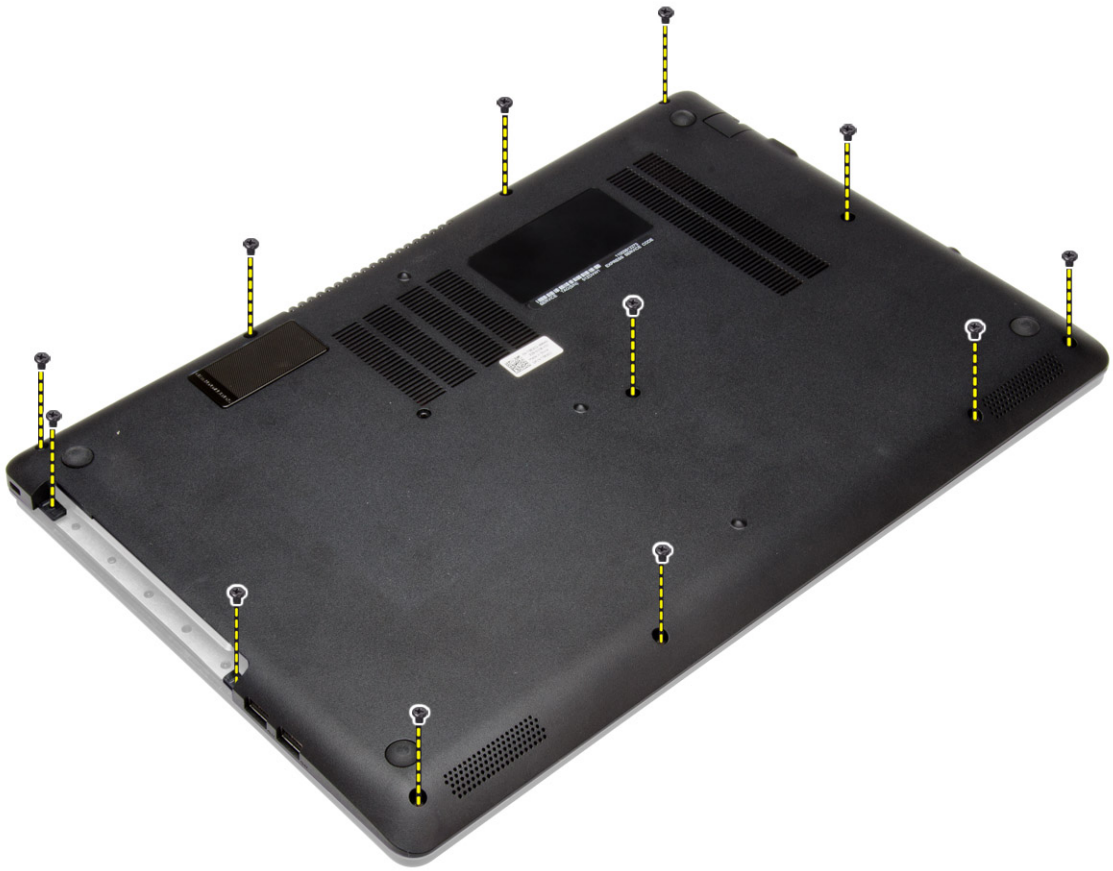
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the screw that secures the base cover to the computer.
3. Pull the optical-drive and remove from the computer.

Installing The Optical-Disk Drive (ODD)

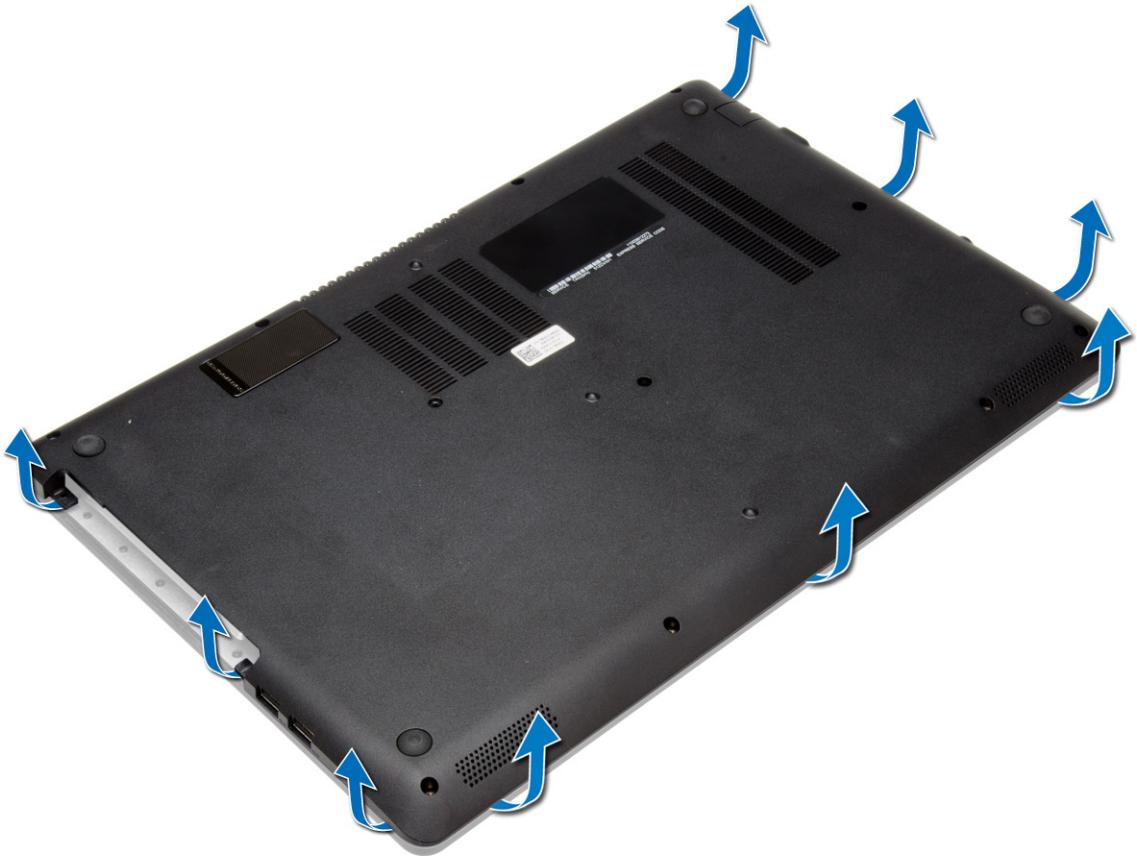
1. Slide the optical drive into the computer.
2. Tighten the screw to secure the base cover to the computer.
3. Follow the procedures in *After Working Inside Your Computer.*

Removing the Base Cover

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove optical drive.
3. Remove the screws that secure the base cover to the computer.



4. Pry the base cover along the edges to loosen it. Lift and remove the base cover from the computer.

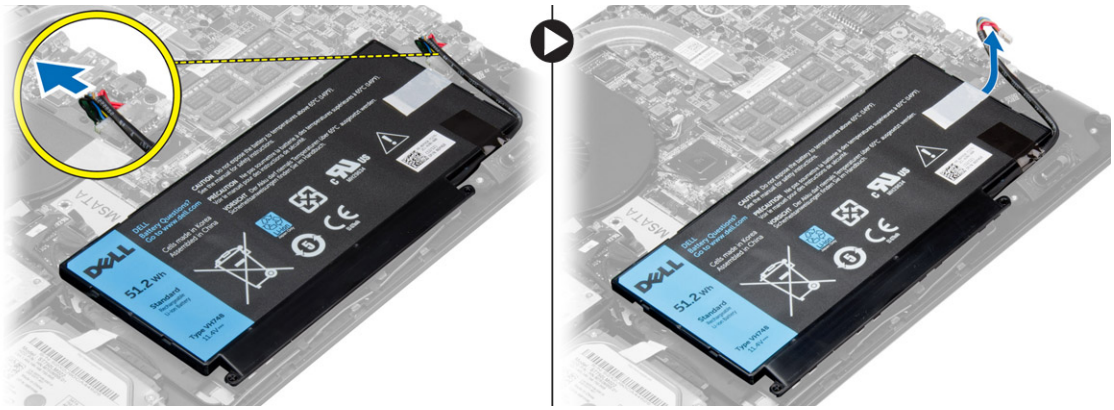


Installing the Base Cover

1. Place the base cover to align with the screw holes on the computer.
2. Tighten the screw to secures the base cover to the computer.
3. Tighten the screw that secures the ODD.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Battery

1. Follow the procedures in *Before Working Inside Your Computer*.
   a) ODD
   b) base cover
2. Disconnect the battery cable from its connector on the system board.
3. Lift and remove the battery from the computer.

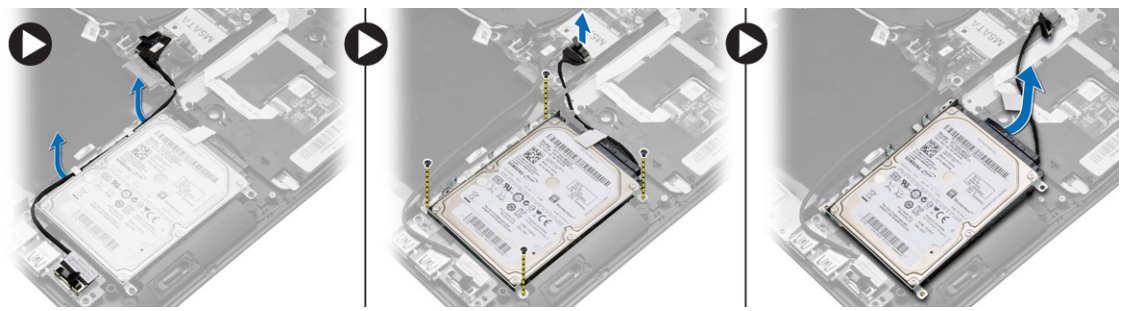


Installing the Battery

1. Slide the battery into its slot until it clicks into place.
2. Connect the battery cable to its connector on the system board.
3. Install:
   a) base cover
   b) ODD
4. Follow the procedures in *After Working Inside Your Computer.*

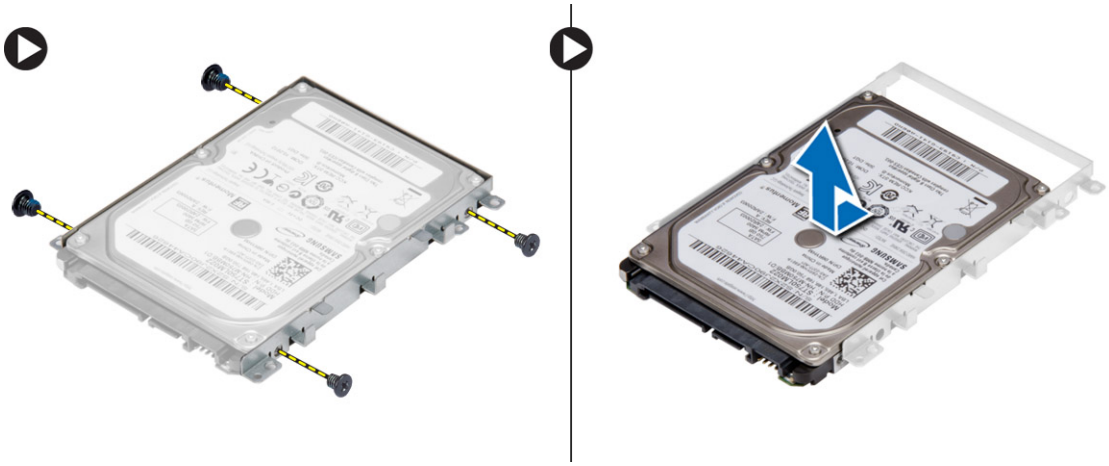
Removing the Hard Drive

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove:
   a) optical-disk drive
   b) base cover
   c) battery
3. Ease the I/O cable from the routing tabs.
4. Disconnect the hard-drive cable from the system board and remove the screws that secures the hard-drive in place.
5. Lift and remove the hard-drive from the computer.



6. Disconnect the hard-drive connector from hard drive.

7. Remove the screws that secure the hard-drive bracket to the hard drive. Separate the hard-drive bracket from the hard drive.



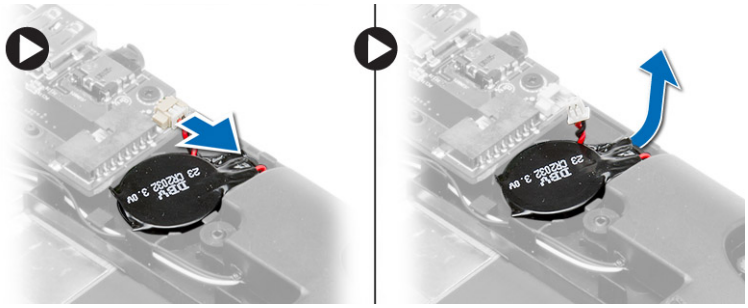
Installing the Hard Drive

1. Align the hard-drive bracket with the hard drive.
2. Tighten the screws on the hard drive to secure the hard-drive bracket to the hard drive.
3. Connect the hard drive connector to hard drive.
4. Slide the hard drive into the bay on the system board.
5. Replace and tighten the screws to secure the hard drive to the computer.
6. Connect hard drive cable to system board and route I/O cable.
7. Install:
   a) battery
   b) base cover
   c) optical drive
8. Follow the procedures in *After Working Inside Your Computer*.

Removing the Coin-Cell Battery

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove :
   a) optical drive
   b) base cover
   c) battery

3. Disconnect the coin-cell battery cable from its connector on the system board.
4. Lift and remove the coin-cell from the computer.

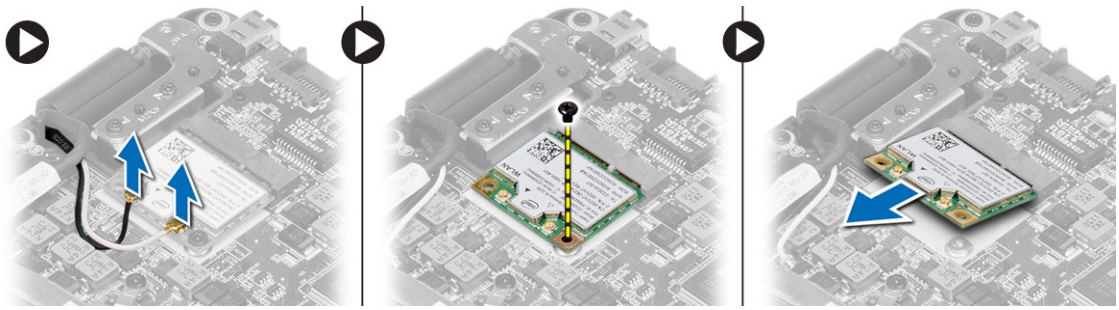


Installing the Coin-Cell Battery

1. Place the coin-cell battery into its slot on the computer.
2. Connect the coin-cell battery cable to its connector on the system board.
3. Install :
   a) battery
   b) base cover
   c) optical drive
4. Follow the procedures in *After Working Inside Your Computer.*

Removing the Wireless Local Area Network (WLAN) Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove :
   a) optical drive
   b) base cover
   c) battery
3. Disconnect the antenna cables from the WLAN card.
4. Remove the screw that secures the WLAN card to the computer.
5. Remove the WLAN card from its slot on the system board.



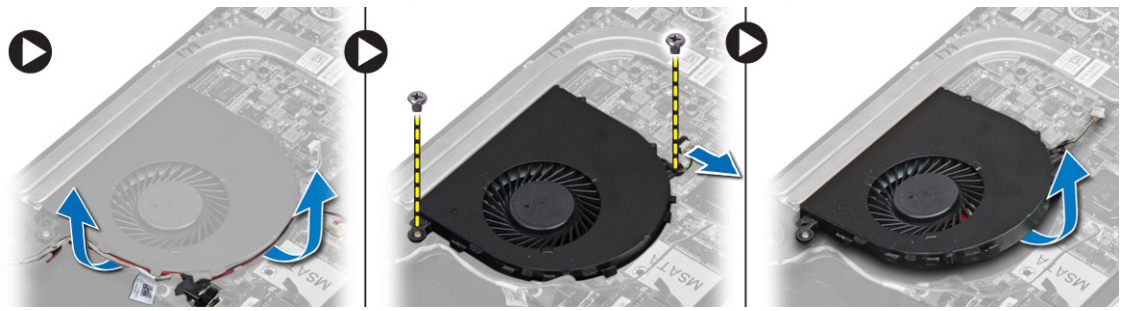
Installing the Wireless Local Area Network (WLAN) Card

1. Insert the WLAN card into its connector at a 45–degree angle.
2. Tighten the screw to secure the WLAN card to the computer.

3. Connect the antenna cables to their respective connectors marked on the WLAN card.
4. Install :
   a) battery
   b) base cover
   c) optical drive
5. Follow the procedures in *After Working Inside Your Computer.*

Removing the System Fan

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) optical drive
   b) base cover
   c) battery
3. Ease the charge-coupled-device(CCD)/woofer cable from it routing channel.
4. Disconnect the system fan cable from its connector on the system board and remove the screws that secure the system fan to the system board.
5. Lift and remove the system fan from the computer.



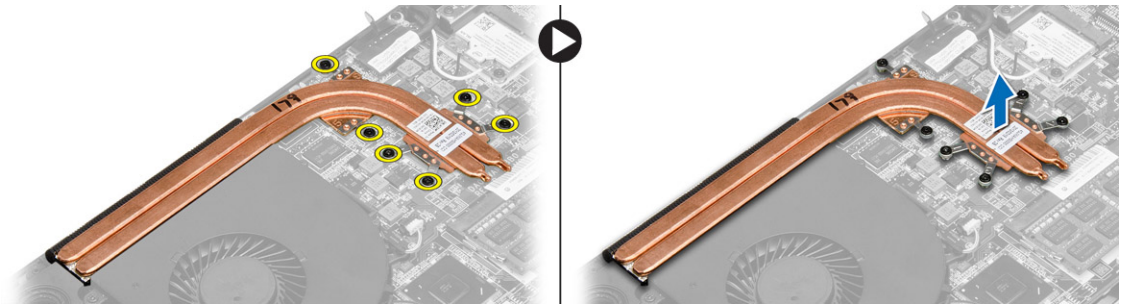
Installing the System Fan

1. Place the system fan into its original position in the system board and affix the system board flex cable.
2. Tighten the screws to secure the fan to the system board.
3. Route the charge-coupled-device(CCD)/woofer cable.
4. Install:
   a) battery
   b) base cover
   c) optical drive
5. Follow the procedures in *After Working Inside Your Computer.*

Removing the Heat Sink

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove :
   a) optical drive
   b) base cover
   c) battery
3. Loosen the screws that secure the heat sink to the system board.

4. Lift and remove the heat sink from the computer.

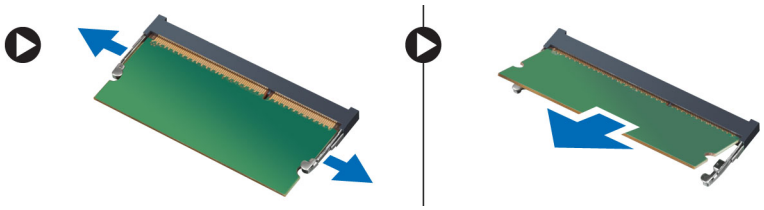


Installing the Heat Sink

1. Place the heat sink into its original position on the system board.
2. Tighten the screws that secure the heat sink to the system board.
3. Install :
   a) battery
   b) base cover
   c) optical drive
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Memory

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) optical drive
   b) base cover
   c) battery
3. Pry the securing clips away from the memory module until it pops-up. Remove the memory module from its connector on the system board.

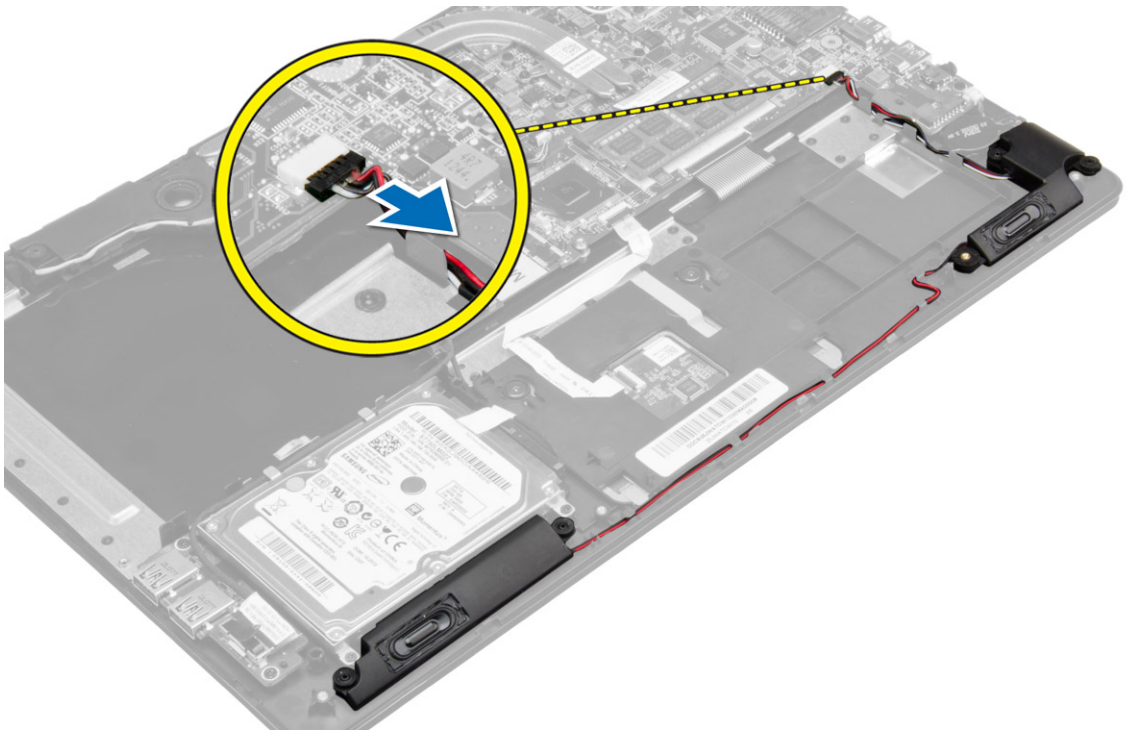


Installing the Memory

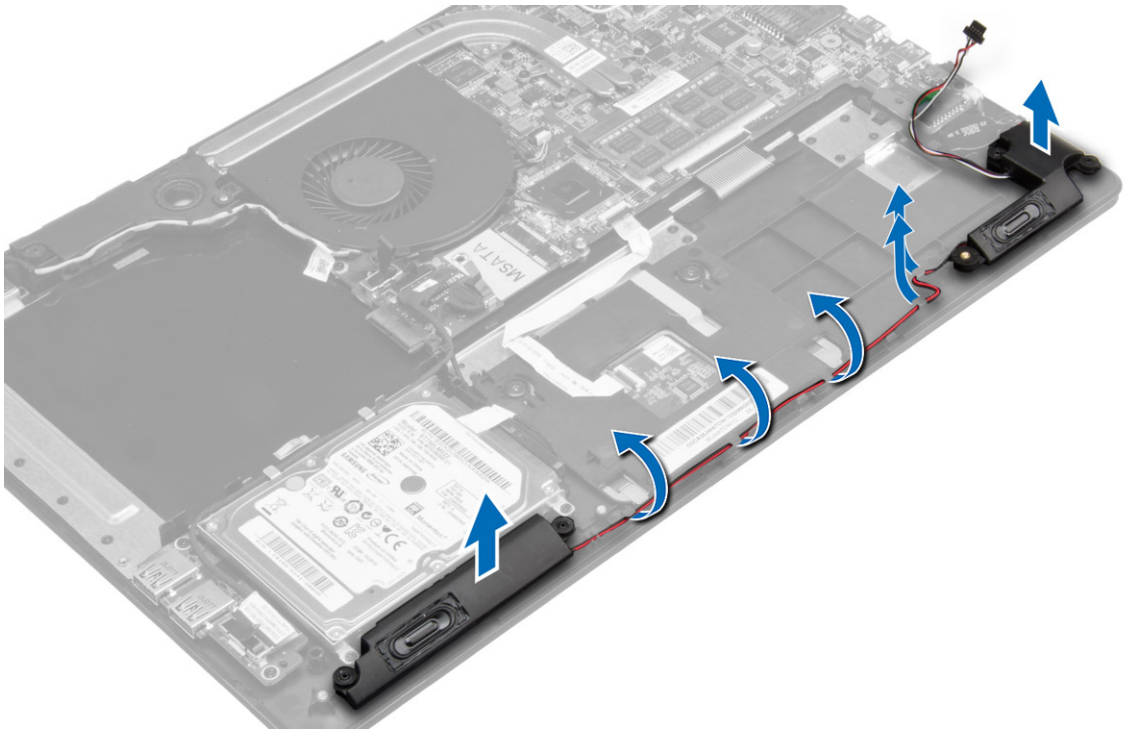
1. Insert the memory module into the memory socket.
2. Press the memory module until it clicks into place
3. Install:
   a) battery
   b) base cover
   c) optical drive
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Speakers

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) optical drive
   b) base cover
   c) battery
3. Disconnect the speaker cable from the system board.



4. Ease the speaker cables out of the routing channel and remove the speakers from the computer.

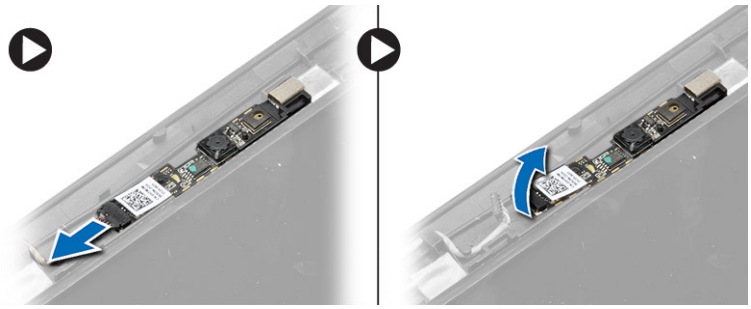


Installing the Speakers

1. Place the speakers into its original position on the computer.
2. Route the speaker cable along the routing channel.
3. Connect the speaker connector to its slot on the system board.
4. Install :
   a) battery
   b) base cover
   c) optical drive
5. Follow the procedures in *After Working Inside Your Computer.*

Removing the Camera

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) optical drive
   b) base cover
   c) battery
   d) display bezel
3. Disconnect the camera cable and lift the camera to remove it from the computer.

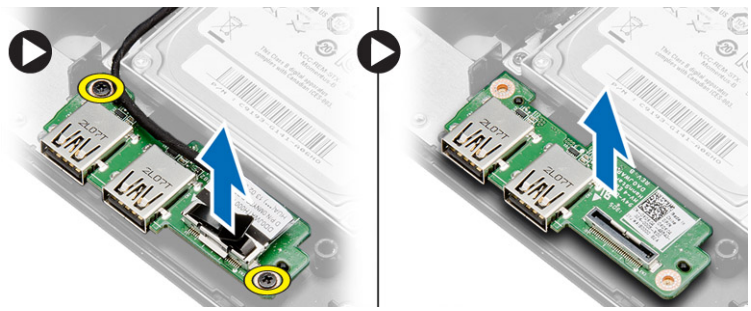


Installing the Camera

1. Align the camera to the base panel .
2. Connect the camera cable to the camera.
3. Install :
   a) display bezel
   b) battery
   c) base cover
   d) optical drive
4. Follow the procedures in *After Working Inside Your Computer.*

Removing the Input/Output (I/O) Board

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a) optical drive
   b) base cover
   c) battery
3. Disconnect the I/O board cable from the system board.
4. Remove the screw that secures the I/O board to the computer and lift the I/O board from the computer.



Installing the Input/Output (I/O) Board

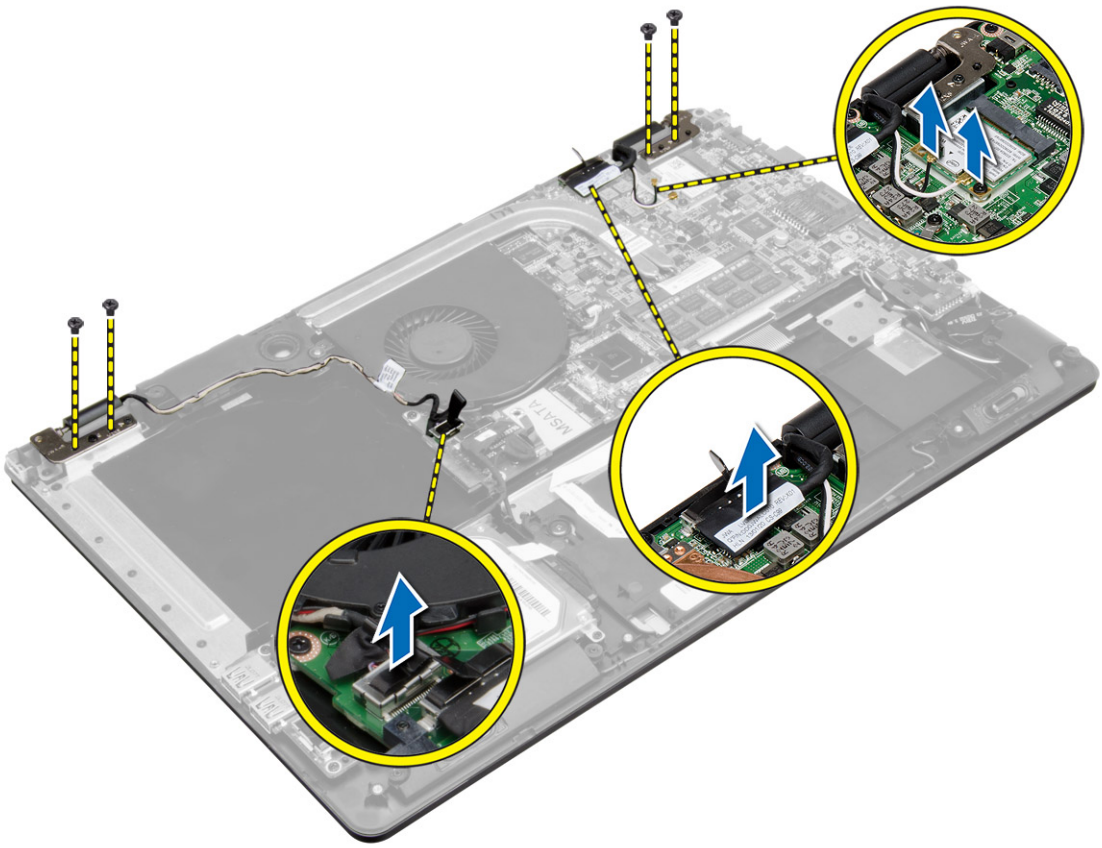
1. Place the I/O board in its slot and snap it in place.
2. Tighten the screws to secure the I/O board to the computer.
3. Connect the I/O cable to the system board.
4. Install:
   a) battery

b) base cover
c) optical drive

5. Follow the procedures in After Working Inside Your Computer.

Removing the Display Assembly

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a. optical drive
   b. base cover
   c. battery
3. Disconnect from its connectors on the system board.
   a. LVDS (low voltage differential signalling) cable
   b. antenna cables
   c. camera cable



4. Remove the screws that secure the display hinges to the system board. Lift and move the system base panel away from the display hinges to facilitate easy removal of the display.

Installing the Display Assembly

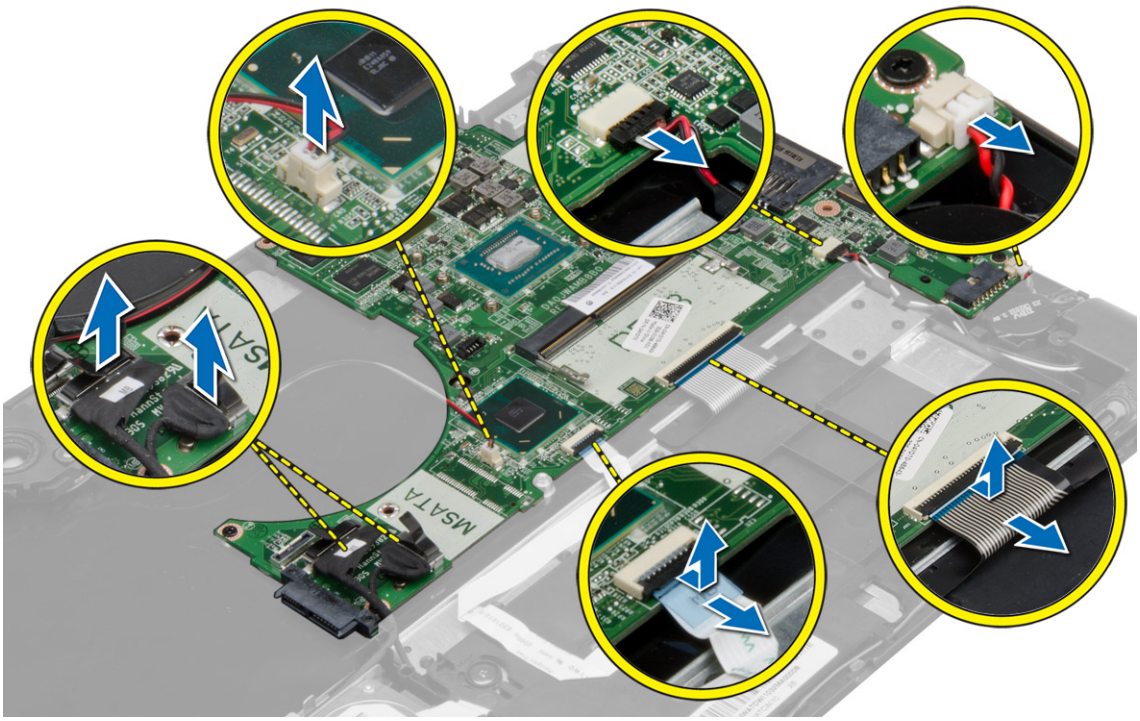
1. Align the base panel of the computer to the display hinges.
2. Install the screws that secure the display hinges to the system board.
3. Connect the LVDS cable, antenna cables, and the camera cable to the connectors on the system board.
4. Install :
   a) battery
   b) base cover
   c) optical drive
5. Follow the procedures in *After Working Inside Your Computer.*

Removing the System Board

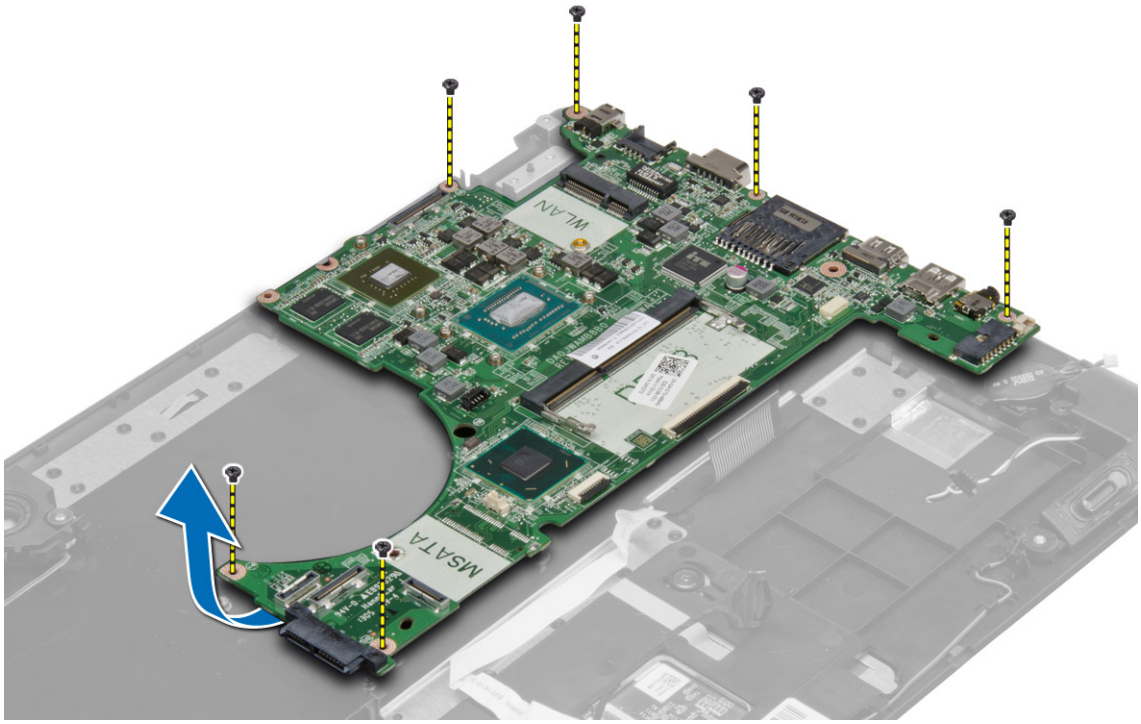
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove :
   a) optical drive
   b) base cover
   c) battery
   d) system fan

e) heat sink
f) memory
g) display assembly

3. Disconnect the following cables:
   a) speaker
   b) display
   c) keyboard
   d) touchpad
   e) camera
   f) coin cell battery
   g) hard drive
   h) woofer cable
   i) I/O cable



4. Remove the screws that secure the system board to the chassis. Remove the system board from the computer.

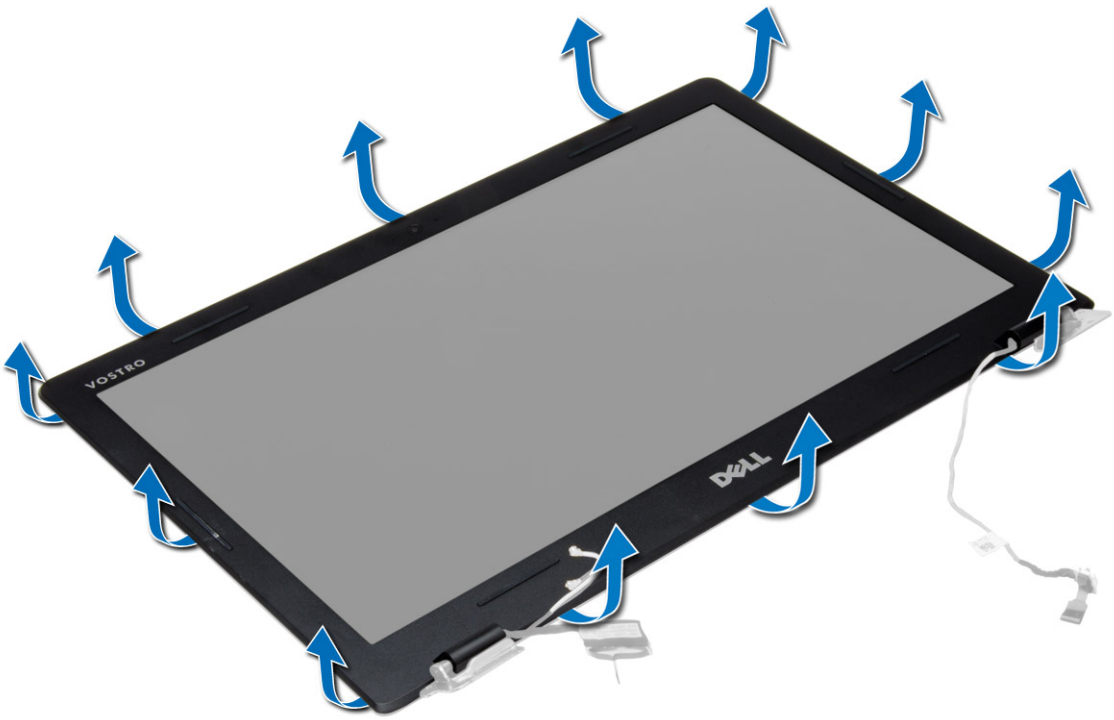


Installing the System Board

1. Place the system board into its original position on the chassis.
2. Install the screws that secure the system board to the chassis.
3. Connect the following cables:
   a) I/O
   b) woofer
   c) hard drive
   d) coin cell battery
   e) camera
   f) touchpad
   g) keyboard
   h) display
   i) speaker
4. Install:
   a) display assembly
   b) memory
   c) heat sink
   d) system fan
   e) battery
   f) base cover
   g) optical drive
5. Follow the procedures in *After Working Inside Your Computer.*

Removing the Display Bezel

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) optical drive
   b) base cover
   c) battery
   d) display assembly
3. Rotate the hinge brackets away from the display bezel to facilitate easy removal of the display bezel.
4. Pry along the inner edges of the display bezel and lift the display bezel.



Installing the Display Bezel

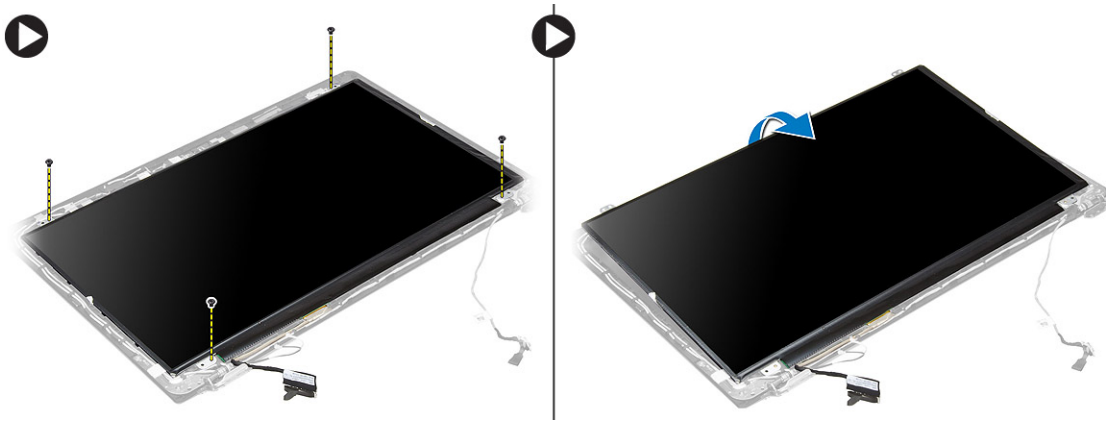
1. Align the display bezel by pressing along the edges.
2. Install :
   a) display assembly
   b) battery
   c) base cover
   d) optical drive
3. Follow the procedures in *After Working Inside Your Computer.*

Removing the Display

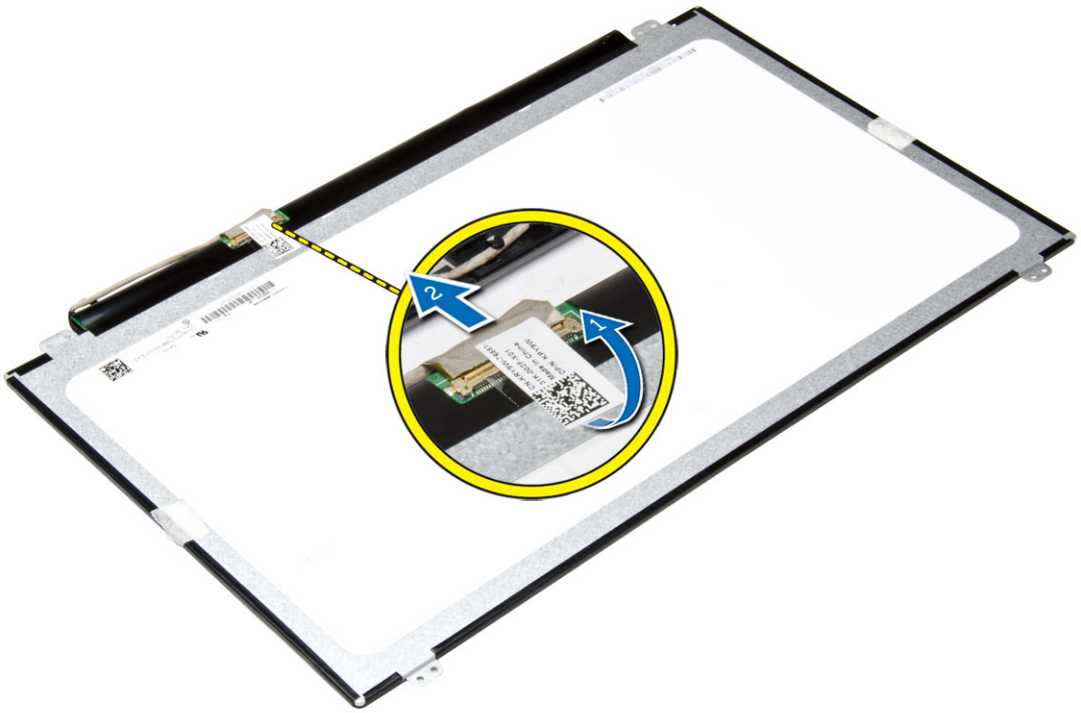
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove :

a) optical drive
b) base cover
c) battery
d) display assembly
e) display bezel

3. Remove the screws that secure the display to the back panels.



4. Gently lift the mylar tape and disconnect the LVDS cable from the back of the display panel. Remove the display panel.



Installing the Display

1. Connect the LVDS cable to the back of the display panel and stick the mylar tape. Align the display to the base panel by pressing along the edges.
2. Install the screws that secure the display.
3. Install :
   a) display bezel
   b) display assembly
   c) battery
   d) base cover
   e) optical drive
4. Follow the procedures in *After Working Inside Your Computer.*

3

System Setup

System Setup Overview

System Setup allows you to:

- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.
- check battery health.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing <F2> key
- Bring up the one-time boot menu by pressing <F12> key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot-menu options are:

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXX denotes the SATA drive number.
- Optical Drive
- Diagnostics

  NOTE: Choosing Diagnostics, will display the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

Navigation Keys

The following table displays the system setup navigation keys.

NOTE: For most of the system setup options, changes that you make are recorded but do not take effect until you restart the system.

Table 1. Navigation Keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
<Tab>	Moves to the next focus area. **NOTE:** For the standard graphics browser only.
<Esc>	Moves to the previous page till you view the main screen. Pressing <Esc> in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
<F1>	Displays the System Setup help file.

Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available. For notebooks, ensure that your computer battery is fully charged and connected to a power outlet

1. Restart the computer.
2. Go to **support.dell.com/support/downloads**.
3. If you have your computer's Service Tag or Express Service Code:

   NOTE: For desktops, the service tag label is available on the front of your computer.

   NOTE: For notebooks, the service tag label is available on the bottom of your computer.

   NOTE: For All-In-One Desktops, the service tag label is available at the back of your computer.

   a) Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   b) Click **Submit** and proceed to step 5.
4. If you do not have your computer's service tag or express service code, select one of the following:
   a) **Automatically detect my Service Tag for me**
   b) **Choose from My Products and Services List**
   c) **Choose from a list of all Dell products**
5. On the application and drivers screen, under the **Operating System** drop-down list, select **BIOS**.
6. Identify the latest BIOS file and click **Download File**.
7. Select your preferred download method in the **Please select your download method below window**; click **Download Now**.

   The **File Download** window appears.
8. Click **Save** to save the file on your computer.
9. Click **Run** to install the updated BIOS settings on your computer.

   Follow the instructions on the screen.

System Setup Options

Main

Table 2. Main

System Time	Re-sets the time on the computer's internal clock.
System Date	Re-sets the date on the computer's internal calendar.
BIOS Version	Displays the BIOS revision.
Product Name	Displays the product name and the model number.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer (if available).
CPU Type	Displays the type of processor.
CPU Speed	Displays the speed of the processor.
CPU ID	Displays the processor ID.
L1 Cache	Displays the processor L1 cache size.
L2 Cache	Displays the processor L2 cache size.
L3 Cache	Displays the processor L3 cache size.
Fixed HDD	Displays the model number and capacity of the hard drive.
SATA ODD	Displays the model number and capacity of the optical drive.
mSATA Device	Display the model number and capacity of mSATA storage.
System Memory	Displays the memory in-built on the computer.
Extended Memory	Displays the memory installed on the computer.
Memory Speed	Displays the memory speed.

Advanced

Table 3. Advanced

Intel SpeedStep	Enable or disable the Intel SpeedStep feature.	Default: Enabled
Virtualization	Enable or disable the Intel Virtualization feature.	Default: Enabled
Integrated NIC	Enable or disable the power supply to the on–board network card.	Default: Enabled
USB Emulation	Enable or disable the USB emulation feature.	Default: Enabled
USB Powershare	Enable or disable the USB powershare feature	Default: Enabled
USB Wake Support	Allows USB devices to wake-up the computer from standby. This feature	Default: Disabled

	is enabled only when the AC adapter is connected.	
SATA Operation	Change the SATA controller mode to either ATA or AHCI.	Default: AHCI
Adapter Warnings		
Function Key Behavior	Specifies the behavior of the function key <Fn> .	Default: Function key
Audience ASR Assist	Enable or disable the Audience ASR Assist feature.	Default: Enabled
Miscellaneous Devices	These fields let you enable or disable various on-board devices.	
Battery Health		

Security

Table 4. Security

Set Asset Tag	This field displays your system's asset tag. If the service tag is not already set, this field can be used to enter it.
Admin Password is:	Allows you to change or delete the administrator password.
System Password is:	Allows you to change or delete the system password.
HDD Password State	Allows you to set a password on the computer's internal hard drive (HDD).
Set Admin Password	Allows you to change or delete the administrator password.
Set System Password	Allows you to change or delete the system password.
Set HDD Password	Allows you to set a password on the computer's internal hard drive (HDD).
Password Change	Allows you to change the security password.
Password Bypass	Allows you to bypass the system password and the internal HDD password prompts during a system restart/ resume from hibernate state.
Computrace	Enable or disable the Computrace feature on your computer.

Boot

Table 5. Boot

Boot Priority Order	Specifies the order of different devices in which the computer will boot through at startup.
Windows Boot Manager	Allows windows to search for a hard drive with windows files and boot from it.
Network Boot	Specifies which network device the computer can boot through.
Secure Boot	Species if the UEFI secure boot option is enabled or disabled.

Load Legacy Option Boot	Allows you to load legacy option. (Default: Disabled)
Boot List Option	Allows you to view the boot options.
Add Boot Option	Allows the user to add an additional boot device.
Delete Boot Option	Allows the user to remove an existing boot device from the boot order.

Exit

This section allows you to save, discard, and load default settings before exiting from System Setup.

4

Troubleshooting Your Computer

You can troubleshoot your computer using indicators like Diagnostic Lights, Beep Codes, and Error Messages during the operation of the computer.

Enhanced Pre-Boot System Assessment (ePSA) Diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

CAUTION: Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.

NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

1. Power-on the computer.
2. As the computer boots, press the <F12> key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.
   The **Enhanced Pre-boot System Assessment** window is displayed, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. If you wish to run a diagnostic test on a specific device, press <Esc> and click **Yes** to stop the diagnostic test.
5. Select the device from the left pane and click **Run Tests**.
6. If there are any issues, error codes are displayed.
   Note the error code and contact Dell.

Battery Status Lights

Table 6. Battery LED Behavior

Battery Charge LED		Off/Hibernate	Standby
AC mode	Full charge	Off	Off
	Charging	Solid White	Solid White

Battery Charge LED		Off/Hibernate	Standby
Battery mode	Discharging when Battery charge is > 10%	Off	Off
	Discharging when Battery charge is <=10%	Off	Blinking White

Device Status Lights

Turns on when you turn on the computer and blinks when the computer is in a power management mode.

Turns on when the computer reads or writes data.

Turns on steadily or blinks to indicate battery charge status.

Beep Codes

The computer may emit a series of beeps during start-up if the display cannot show errors or problems. The following repetitive beep codes help the user troubleshoot problems with his computer.

Beeps	Description	Possible Cause / Suggested Remedy
1	BIOS ROM checksum in progress or failure	System board failure, covers BIOS corruption or ROM error
2	No Memory (RAM) detected	1. If you have two or more memory modules installed, remove the modules, reinstall one module, and then restart the computer. If the computer starts normally, reinstall an extra module. Continue until you have identified a faulty module or reinstalled all modules without error. 2. If available, install working memory of the same type into your computer. 3. If the problem persists, possible memory connector failure.
3	• Chipset Error (North and South bridge error, DMA/IMR/Timer error) • Time-Of-Day Clock test failure • Gate A20 failure • Super I/O chip failure • Keyboard controller test failure	System board failure
4	Memory read / write failure	1. Ensure that no special memory module/memory connector placement requirements exist. 2. Verify that the memory modules that you are installing are compatible with your computer. 3. If the problem persists, possible memory failure.
5	Real time Clock (RTC) power fail	1. Replace the battery.

Beeps	Description	Possible Cause / Suggested Remedy
		2. If the problem persists, possible battery failure or system board failure.
6	Video BIOS test failure	Video subsystem failure
7	CPU Cache test failure	Processor failure
8	Display	Display failure

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Technical Specification

NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click Start **(Start icon) → Help and Support**, and then select the option to view information about your computer.

NOTE: In Windows 8, navigate to **Help and Support** to view information about your computer.

Table 7. System Information

Feature	Description
Chipset	HM77
DRAM bus width	64 bit
Flash EPROM	A25LQ32AM-F/Q

Table 8. Processor

Feature	Description
Types	• Intel Core i3 • Intel Core i5 • Intel Core i7
L1 cache	32 KB
L2 cache	256 KB
L3 cache	3 MB

Table 9. Memory

Feature	Description
Memory connector	HM77
Memory capacity	4 GB
Memory type	SO-DIMM
Minimum memory	4 GB
Maximum memory	8 GB

Table 10. Audio

Feature	Description
Type	Speakers 1.5 W (2) and 2 W (1)
Controller	Realtek ALC290

Feature	Description
Stereo conversion	2.1
Speakers	3
Volume controls	Function Keys (<F8>–<F12>)

Table 11. Video

Feature	Description
Video type	UMA/DIS
Video Controller:	
UMA	Intel HD Graphics 4000
Discrete	NVidia Geforce
Data bus	64 bit
External display support	HDMI/ VGA

Table 12. Camera

Feature	Description
Camera Resolution	1 Megapixel
Video Resolution (maximum)	1280 x 720 pixels
Diagonal viewing angle	70.67 degree

Table 13. Communication

Feature	Description
Network adapter	Ethernet 10/100/1000 Base-T
Wireless	Wi-fi 802.11 a/b/g/n

Table 14. Ports and Connectors

Feature	Description
Audio	combo jack
Video	HDMI/VGA
Network adapter	RJ–45
USB	3 (includes one USB PowerShare port)
Media card reader	SD

Table 15. Display

Feature	Description
Type	HD
Dimensions:	
Height	205.6 mm (8.09 inches)
Width	320.9 mm (12.63 inches)
Diagonal	15.6"
Active area (X/Y)	309.4 mm (12.18 inches) x 173.95 mm (6.84 inches)
Maximum resolution	1366 x 768 pixels
Maximum Brightness	200 nits
Operating angle	135 degree
Refresh rate	60Hz / 40Hz
Minimum Viewing angles:	
Horizontal	40 (L) / 40 (R)
Vertical	10 (up) / 30 (down)
Pixel pitch	0.2265 (H) x 0.2265 (V) mm

Table 16. Keyboard

Feature	Description
Number of keys	86

Table 17. Touchpad

Feature	Description
Active Area:	
X-axis	111.40 mm (4.38 inches)
Y-axis	76.40 mm (3 inches)

Table 18. Battery

Feature	Description
Type	ICP666480
Dimensions:	
Height	99.5 mm (3.91 inches)
Width	198.5 mm (7.81 inches)
Depth	7.5 mm (0.30 inch)
Weight	269 grams (0.60 lb)

Feature	Description
Charge time	3 hour
Voltage	11.4 V
Temperature range:	
Operating	0 ℃ to 50 ℃
Non-Operating	0 ℃ to 65 ℃
Coin-cell battery	3 V CR2032 lithium

Table 19. AC Adapter

Feature	Description
Type	AC adapter
Input voltage	100 ~ 240 VAC
Input current (maximum)	1.6 A / 1.5 A
Input frequency	50 Hz ~ 60 Hz
Output power	65 W / 90 W
Output current	0 A to 3.34 A / 4.62 A
Rated output voltage	19.5 V
Temperature range:	
Operating	0 ℃ to 40 ℃
Non-Operating	95 ℃

Table 20. Physical

Feature	Description
Height	21.00 mm (0.82 inches)
Width	382.60 mm (15.06 inches)
Depth	254.50 mm (10.01 inch)
Weight (minimum)	2230 grams (4.9 lbs)

Table 21. Environmental

Feature	Description
Temperature:	
Operating	0 ℃ to 35℃
Storage	-20 ℃ to 60 ℃
Relative humidity (maximum):	
Operating	20% – 90%

Feature	Description
Storage	20% – 95%
Altitude (maximum):	
Operating	–15.2 m to 3048 m (–50 to 10,000 ft) 0° to 35°C
Non-Operating	–15.2 m to 10,668 m (–50 ft to 35,000 ft)
Airborne contaminant level	G2 or lower as defined by ISA - S71.04 – 1985

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Contacting Dell

To contact Dell for sales, technical support, or customer service issues:

1. Visit support.dell.com.
2. Verify your country or region in the **Choose a Country/Region** drop-down menu at the bottom of the page.
3. Click **Contact Us** on the left side of the page.
4. Select the appropriate service or support link based on your need.
5. Choose the method of contacting Dell that is convenient for you.